

# PHILIPS



## Data Handbook

1984/1985

### Connectors

**Plastics and Metalware Factories**

## CONNECTORS

	<i>page</i>
Conversion list (catalogue number-to-type) . . . . .	3
Two-part jumper connector F088. . . . .	5
Modular connector system F095 . . . . .	11
board edge sockets . . . . .	17
panel sockets. . . . .	20
mounting blocks . . . . .	24
male headers with straight pins. . . . .	25
male headers with 90° angled pins. . . . .	28
bottom-entry sockets . . . . .	33
block headers with 90° angled pins . . . . .	37
jumpers . . . . .	41
board edge sockets, economy version. . . . .	45
panel sockets, economy version . . . . .	49
Accessories F068-I. . . . .	55
coding parts . . . . .	55
accessories for female parts with pins for wire wrapping . . . . .	59
cable hood . . . . .	60
Solder tag . . . . .	65



## CONVERSION LIST

The table below gives the 12-digit catalogue numbers of the components mentioned in this Handbook, and the corresponding types where the data can be found.

catalogue number	description	page
2422 024 88003	female plug, F088	5
2422 025 89303	mounting strip, F088	5
89574	accessories, F068-I	57
89575	accessories, F068-I	57
2422 034 15068	solder tag	65
2422 062 0 . . .	panel sockets, F095	20, 49
1 . . .	board edge sockets, F095	17, 45
4 . . .	male headers with straight pins, F095	25
5 . . .	male headers with straight pins, F095	25
6 . . .	male headers with straight pins, F095	25
7 . . .	male headers with 90° angled pins, F095	28
8 . . .	bottom-entry sockets, F095	33
9 . . .	block headers with 90° angled pins, F095	37
97 . . .	jumpers, F095	41
4322 027 73750	mounting block, F095	24
4332 026 16770	contact pin, F088	5
25 . . .	accessories, F068-I	55, 57, 60
26 . . .	accessories, F068-I	60
28030	mounting block, F095	24
28040	mounting block, F095	24
29 . . .	accessories, F068-I	59
30 . . .	accessories, F068-I	60



SUPERSEDED BY JUMPER F095

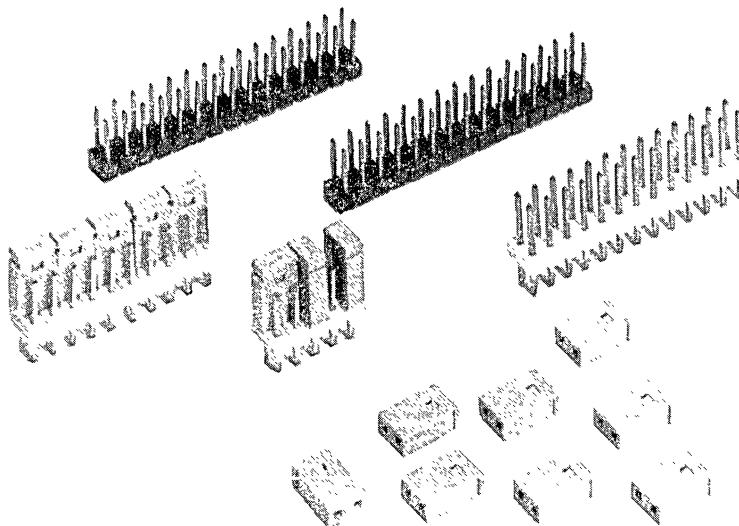
## TWO-PART JUMPER CONNECTOR

- 2,54 mm (0,1 in) pitch

## QUICK REFERENCE DATA

Contact pitch	2,54 mm (0,1 in)
Number of contacts	2
Board thickness	1,42 to 1,78 mm
Terminations of contact pins	suitable for dip-soldering
Current at $T_{amb} = 20^{\circ}\text{C}$	3 A
Mechanical endurance	150 insertions
Climatic category (IEC 68)	55/125/21

800109-13-02



## APPLICATION

This connector is intended for use as a link between two adjacent points on a printed-wiring board with a grid of 2,54 mm (0,1 in) thus enabling various circuit configurations to be built up or parts of the circuit to be shorted out.

**DESCRIPTION**

The connector consists of two contact pins for dip-solder mounting and a female plug. The plug is moulded in grey glass-fibre-filled thermoplastic. The contact springs in the plug and the pins are of phosphor bronze; the springs are shaped to provide two contact surfaces.

The contact faces are hard gold plated. The pins can besupplied either loose or in a mounting strip with 2 x 16 pins which can be removed after dip-soldering.

If the contact pins are to be permanently interconnected, a modified wire wrapping can be used instead of the female plug.

Note: The female plug also mates with the male headers (11 mm pin length) of the F095 modular connector system; see data sheet on F095.

**ELECTRICAL DATA**

Current at  $T_{amb} = 20^{\circ}\text{C}$

3 A

Derated current curve

according to IEC 512,  
test 5b, see Fig. 1

Contact resistance (including material  
resistance) at 10 mA, max. 20 mV (peak)  
open circuit voltage, 1 kHz.

Measured at point A, see Fig. 2

initially

$\leq 25 \text{ m}\Omega$

after mechanical endurance

$\leq 25 \text{ m}\Omega$

after damp heat test

$\leq 35 \text{ m}\Omega$

Insulation resistance

initially

$> 5 \cdot 10^3 \text{ M}\Omega$

after damp heat test

$> 10^3 \text{ M}\Omega$

Proof voltage for 1 min, at  $20^{\circ}\text{C}$

between contact and a metal mounting plate

750 V (r.m.s.), 50 Hz

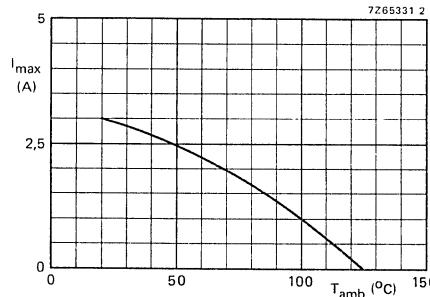


Fig. 1 Maximum current per contact, equally on all contacts, as a function of ambient temperature (20% derated).

**MECHANICAL DATA**

Contact pitch	2,54 mm (0,1 in)
Number of contacts	2
Board thickness	1,42 to 1,78 mm
Insertion force	$\leq 2\text{N}$
Withdrawal force	$\geq 0,12\text{N}$
Mechanical endurance	150 insertions; according to IEC 512, test 9a
Connector body material	glass-fibre-filled thermoplastic
Contact pins and springs	
material	phosphor bronze
shape	see Fig. 2
finish of contact surfaces	hard gold
contact force	$\geq 2 \times 0,5\text{N}$
type of pin termination	dip-solder
finish of termination	hard gold
Mass	
female plug	0,16g
contact pin	0,021g
Solderability	according to IEC 512, test 12a, 235 °C, 2 s
Shock	according to IEC 512, test 6c, 50g, 11 ms (plug in fixed position)
Vibration	according to IEC 512, test 6d, 10 to 1500 Hz, 1,5 mm (p-p) or 10g, 3 directions, 2 h per direction (plug in fixed position)

**ENVIRONMENTAL DATA**

Climatic category (IEC 68)	55/125/21
Ambient temperature range	-55 to + 125 °C
Damp heat, steady state	according to IEC 512, test 11c, 21 days, 40 °C, R.H. 90 to 95%
Flammability	according to UL94, category V-1

## DIMENSIONAL DATA

Dimensions in mm

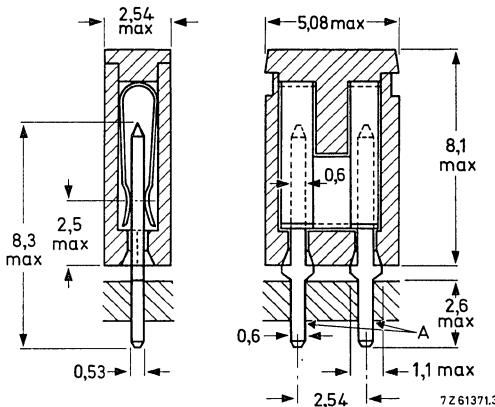


Fig. 2 Two-part jumper connector in mounted position.

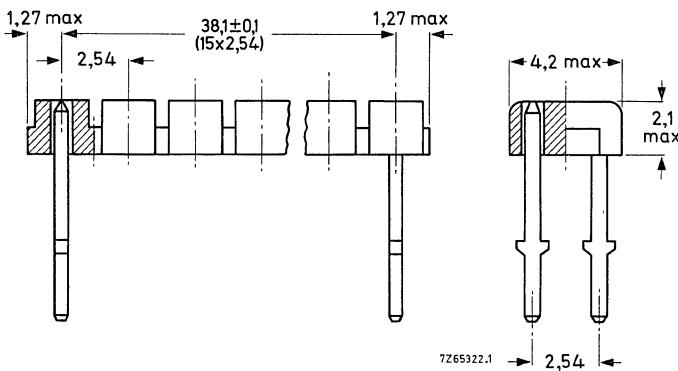


Fig. 3 Removable mounting strip with 2 x 16 contact pins. For pin dimensions see Fig. 2.

Table 1

connector part	catalogue number	smallest packing quantity
female plug	2422 024 88003	500
loose pin	4332 026 16770	1000
removable mounting strip with 2 x 16 pins	2422 025 89303	54

For ordering, see next page.

## MOUNTING

The best result of pin positioning is achieved by using pins supplied on a removable mounting strip. After dip or wave soldering of the pins, the strip can be removed by hand or a pair of tweezers. For piercing diagram of the printed-wiring board see Fig. 4.

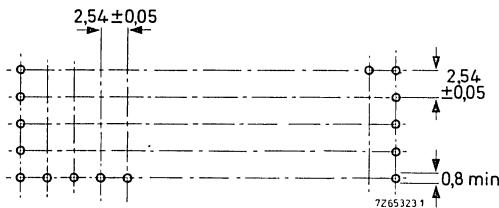


Fig. 4 Piercing diagram.

## MARKING

The package is marked with:

- 12-digit catalogue number;
- reference number of manufacturer;
- number of pieces.

## HOW TO ORDER

Order the parts by quoting the 12-digit catalogue numbers as shown in Table 1. Note that the catalogue number applies to one piece, and take into account the smallest packing quantity; please order in multiples of this quantity.

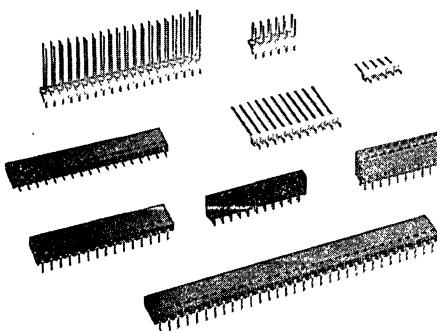


## MODULAR CONNECTOR SYSTEM

- For basic grid of 2,54 mm (0,1 in)

### QUICK REFERENCE DATA

Contact pitch	2,54 mm (0,1 in)
Number of contacts	
<i>Female connectors</i>	
board edge socket, single row	2 to 32
board edge socket, double row	4 to 130
panel socket, single row	2 to 32
panel socket, double row	4 to 100
bottom-entry socket, single row*	2 to 32
bottom-entry socket, double row*	4 to 20
jumper*	2 (interconnected)
<i>Male connectors</i>	
male header, straight pins, single row	2 to 32
male header, straight pins, double row	4 to 64
male header, 90° angled pins, single row	2 to 32
male header, 90° angled pins, double row	4 to 64
mounting block for pins, double row	8, 12, 20
Board thickness	1,6 mm
Terminations	dip-solder pins pins for wire wrapping
Current at T <sub>amb</sub> = 20 °C	3 A
Mechanical endurance	300 insertions
Climatic category (IEC 68)	55/125/21



\* Types with slightly different properties; for data see the relevant separate data sheet F095.

**APPLICATION**

This modular connector system has been developed to provide a simple, flexible yet reliable means of interconnecting electronic circuit boards and modules in applications where maximum packing density is of major importance.

**DESCRIPTION**

The system consists of the following parts (see also Fig. 1).

## Female connectors:

- board edge sockets for connecting daughter boards at right-angles to mother boards in vertically stacked card systems;
- panel sockets for horizontally stacking printed-wiring boards;
- bottom-entry sockets\* for horizontal or vertical interconnection of printed-wiring boards.

## Male connectors:

- male headers with straight or 90° angled pins for accommodating mini wire wrapping joints or mating panel sockets and board edge sockets;
- mounting blocks for pins.

The board edge sockets and panel sockets have a body of flame retardant, glass-fibre-filled thermosetting material. The sockets are provided with pins for dip or wave soldering.

The male headers, mounting blocks and bottom-entry sockets have a body of flame retardant, glass-fibre-filled thermoplastic polyester material. They are provided with dip-solder pins or pins for wire wrapping.

The contact springs and pins are gold finished phosphor bronze; the electrical contact surfaces are gold-on-nickel plated.

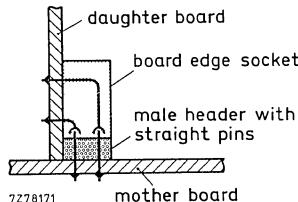


Fig. 1a.

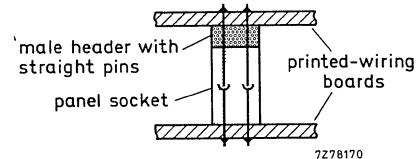


Fig. 1b.

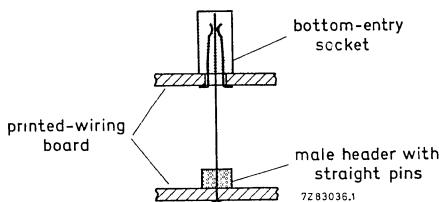


Fig. 1c.

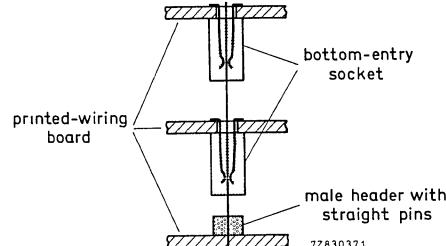
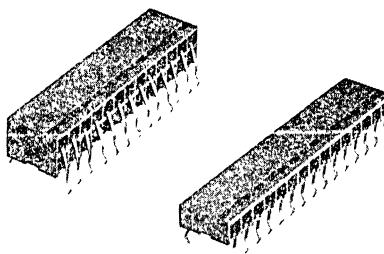


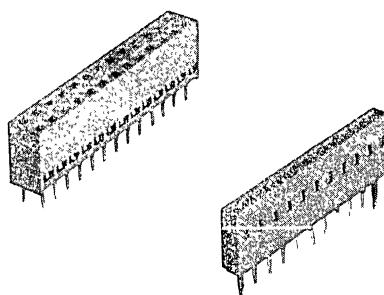
Fig. 1d.

**SURVEY**Board-edge  
sockets

4 to 130 contacts; double row

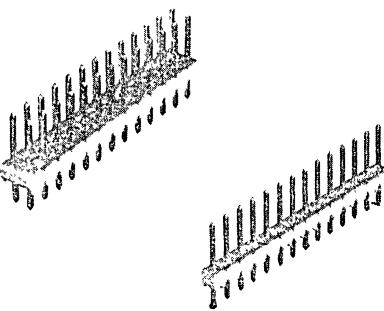
2 to 32 contacts; single row

Panel sockets



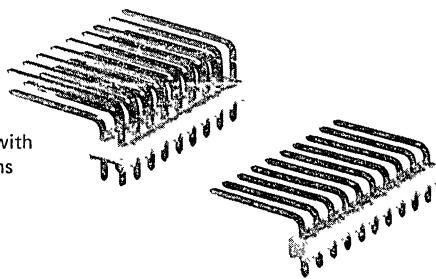
4 to 100 contacts; double row

2 to 32 contacts; single row

Male headers with  
straight pins

4 to 64 contacts; double row

2 to 32 contacts; single row

Male headers with  
90° angled pins

4 to 20 contacts; double row

2 to 32 contacts; single row

**ELECTRICAL DATA**Current at  $T_{amb} = 20^{\circ}\text{C}$ 

3 A

Rated current curve

according to IEC 512,  
test 5b, see Fig. 2

Contact resistance (including material  
resistance) at 10 mA, max. 20 mV (peak)  
open circuit voltage, 1 kHz.

Measured on contact pin at 2 mm  
from connector body:

initially	$\leq 15 \text{ m}\Omega$
after tests	$\leq 20 \text{ m}\Omega$

Insulation resistance

initially	$> 10^5 \text{ M}\Omega$
after tests	$> 10^3 \text{ M}\Omega$

Creepage distance

between adjacent or opposite contacts	$\geq 0,5 \text{ mm}$
---------------------------------------	-----------------------

Clearance

between adjacent or opposite contacts	$\geq 0,4 \text{ mm}$
---------------------------------------	-----------------------

Proof voltage for 1 min, at  $20^{\circ}\text{C}$ 

between adjacent or opposite contacts	750 V (r.m.s.), 50 Hz
---------------------------------------	-----------------------

Capacitance between contacts at 1 MHz

$\leq 1,5 \text{ pF}$
-----------------------

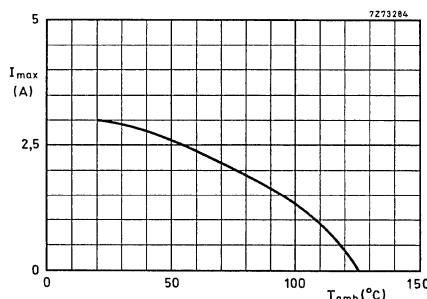


Fig. 2 Maximum current per contact, equally on all contacts, as a function of ambient temperature (20% derated).

**MECHANICAL DATA**

Contact pitch	2,54 mm (0,1 in)
Number of contacts	
<i>Female connectors</i>	
board edge socket, single row	2 to 32
board edge socket, double row	4 to 130
panel socket, single row	2 to 32
panel socket, double row	4 to 100
<i>Male connectors</i>	
male header, straight pins, single row	2 to 32
male header, straight pins, double row	4 to 64
male header, 90° angled pins, single row	2 to 32
male header, 90° angled pins, double row	4 to 64
Board thickness (for dip-solder application)	1,6 mm
Insertion force per contact	≤ 1,5 N
Withdrawal force per contact	≥ 0,1 N
Mechanical endurance	300 insertions: according to IEC 512, test 9a
Connector body material	
board edge socket and panel socket	glass-fibre-filled thermosetting
male header	glass-fibre-filled thermoplastic
Contacts	
material	<b>springs</b>
shape	<b>pins</b>
finish of contact surfaces	phosphor bronze
type of termination	solid cantilever
finish of termination	rolled-on gold
Wire diameter for wire wrapping	on nickel plate
Solderability	dip-solder pin
Resistance to soldering heat	gold flash
Shock	AWG30 to AWG26 ( $\phi$ 0,25 to 0,40 mm)
Vibration	235 °C, 2 s, according to IEC 512, test 12a
	260 °C, 10 s, according to IEC 512, test 12d
	according to IEC 512, test 6c, 50g, 11 ms
	according to IEC 512, test 6d, 10 to 2000 Hz, 1,5 mm (p-p) or 10g, 3 directions, 2 h per direction

**ENVIRONMENTAL DATA**

Climatic category (IEC 68)	55/125/21
Ambient temperature range	-55 to + 125 °C
Storage temperature range	-55 to + 125 °C
Damp heat, steady state	according to IEC 512, test 11c, 21 days, 40 °C, R.H. 90 to 95%
Dry heat	according to IEC 512, test 11i, 16 h, 125 °C
Salt mist	according to IEC 512, test 11f, 96 h
Flammability	according to UL94, category V-0

## DIMENSIONAL DATA: BOARD EDGE SOCKETS

For economy version of board edge sockets, see page 45

Dimensions in mm

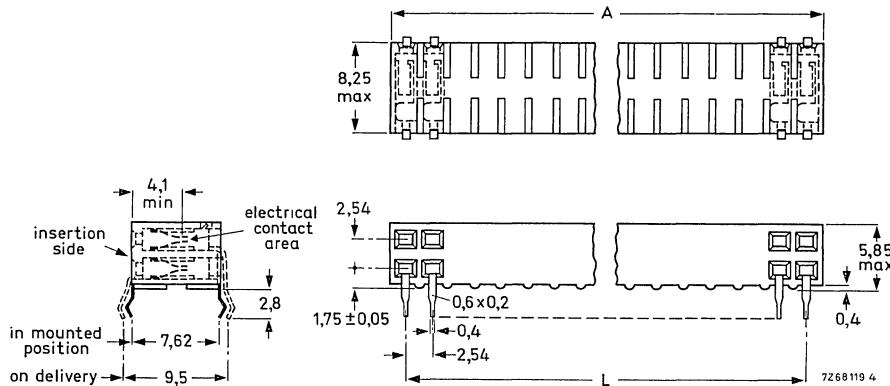


Fig. 3 Board edge socket, double row. See Table 1 for dimensions A and L.

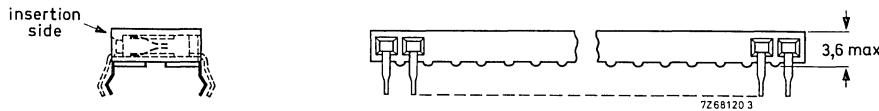


Fig. 4 Board edge socket, single row. Dimensions are identical with those in Fig. 3, except as shown.

Table 1 Board edge sockets

number of contacts		L	A	catalogue number 2422 062 .....		smallest packing quantity	
single row	double row			single row	double row		
2	4	2,54	5,44	10202	10212	432	
3	6	5,08	7,98	10302	10312	297	
4	8	7,62	10,52	10402	10412	225	
5	10	10,16	13,06	10502	10512	180	
6	12	12,70	15,60	10602	10612	153	
7	14	15,24	18,14	10702	10712	135	
8	16	17,78	20,68	10802	10812	117	
9	18	20,32	23,22	10902	10912	99	
10	20	22,86	25,76	11002	11012	90	
11	22	25,40	28,30	11102	11112	81	
12	24	27,94	30,84	11202	11212	72	
13	26	30,48	33,38	11302	11312	72	
14	28	33,02	35,92	11402	11412	63	
15	30	35,56	38,46	11502	11512	63	
16	32	38,10	41,00	± 0,30	11602	11612	54
17	34	40,64	43,54		11702	11712	54
18	36	43,18	46,08		11802	11812	45
19	38	45,72	48,62		11902	11912	45
20	40	48,26	51,16		12002	12012	45
21	42	50,80	53,70		12102	12112	45
22	44	53,34	56,24		12202	12212	36
23	46	55,88	58,78		12302	12312	36
24	48	58,42	61,32		12402	12412	36
25	50	60,96	63,86		12502	12512	36
26	52	63,50	66,40		12602	12612	36
27	54	66,04	68,94		12702	12712	36
28	56	68,58	71,48		12802	12812	27
29	58	71,12	74,02		12902	12912	27
30	60	73,66	76,56		13002	13012	27
31	62	76,20	79,10		13102	13112	27
32	64	78,74	81,64		13202	13212	27

Table 1: Board edge sockets (continued)

number of contacts		L	A	catalogue number 2422 062 .....		smallest packing quantity
single row	double row			single row	double row	
66	81,28	$\pm 0,15$	84,18	$\pm 0,30$	13312	27
68	83,82		86,72		13412	27
70	86,36		89,26		13512	27
72	88,90		91,80		13612	27
74	91,44		94,34		13712	18
76	93,98		96,88		13812	18
78	96,52		99,42		13912	18
80	99,06		101,96		14012	18
82	101,60		104,50		14112	18
84	104,14		107,04		14212	18
86	106,68		109,58		14312	18
88	109,22		112,12		14412	18
90	111,76		114,66		14512	18
92	114,30		117,20		14612	18
94	116,84		119,74		14712	18
96	119,38		122,28		14812	18
98	121,92		124,82		14912	18
100	124,46		127,36		15012	18
102	127,00		129,90		15112	18
104	129,54		132,44		15212	18
106	132,08		134,98		15312	18
108	134,62		137,52		15412	18
110	137,16		140,06		15512	9
112	139,70		142,60		15612 *	9
114	142,24		145,14		15712 *	9
116	144,78		147,68		15812 *	9
118	147,32		150,22		15912 *	9
120	149,86		152,76		16012 *	9
122	152,40		155,30		16112 *	9
124	154,94		157,84		16212 *	9
126	157,48		160,38		16312 *	9
128	160,02		162,92		16412 *	9
130	162,56		165,46		16512 *	9

For ordering, see "How to order", page 31.

\* Available to special order.

## DIMENSIONAL DATA: PANEL SOCKETS, without supports

For economy version of panel sockets, see page 49

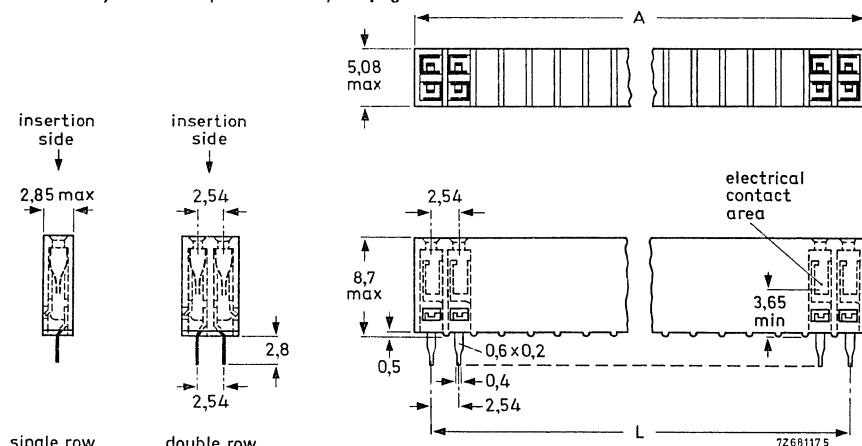


Fig. 5 Panel socket without supports; see Table 2 for dimensions A and L.

Table 2: Panel sockets, without supports

number of contacts		L	A	catalogue number 2422 062 .....		smallest packing quantity
single row	double row			single row	double row	
2	4	2,54	5,44	00202	00212	384
3	6	5,08	7,98	00302	00312	264
4	8	7,62	10,52	00402	00412	200
5	10	10,16	13,06	00502	00512	160
6	12	12,70	15,60	00602	00612	136
7	14	15,24	18,14	00702	00712	120
8	16	17,78	20,68	00802	00812	104
9	18	20,32	23,22	00902	00912	88
10	20	22,86	25,76	01002	01012	80

Table 2:Panel sockets, without supports (continued)

number of contacts		L	A	catalogue number 2422 062 . . . .		smallest packing quantity
single row	double row			single row	double row	
11	22	25,40	28,30	01102	01112	72
12	24	27,94	30,84	01202	01212	64
13	26	30,48	33,38	01302	01312	64
14	28	33,02	35,92	01402	01412	56
15	30	35,56	38,46	01502	01512	56
16	32	38,10	41,00	01602	01612	48
17	34	40,64	43,54	01702	01712	48
18	36	43,18	46,08	01802	01812	48
19	38	45,72	48,62	01902	01912	40
20	40	48,26	51,16	02002	02012	40
21	42	50,80	53,70	02102	02112	40
22	44	53,34	56,24	02202	02212	32
23	46	55,88	58,78	02302	02312	32
24	48	58,42	61,32	02402	02412	32
25	50	60,96	63,86	02502	02512	32
26	52	62,50	66,40	02602	02612	32
27	54	66,04	68,94	02702	02712	32
28	56	68,58	71,48	02802	02812	24
29	58	71,12	74,02	02902	02912	24
30	60	73,66	76,56	03002	03012	24
31	62	76,20	79,10	03102	03112	24
32	64	78,74	81,64	03202	03212	24
33	66	81,28	84,18	03302	03312	24
34	68	83,82	86,72	03402	03412	24
	70	86,36	89,26		03512	24
	72	88,90	91,80		03612	24
	74	91,44	94,34		03712	16
	76	93,98	96,88		03812	16
	78	96,52	99,42		03912	16
	80	99,06	101,96		04012	16
	82	101,60	104,50		04112	16
	84	104,14	107,04		04212	16
	86	106,68	109,58		04312	16
	88	109,22	112,12		04412	16
	90	111,76	114,66		04512	16
	92	114,30	117,20		04612	16
	94	116,84	119,74		04712	16
	96	119,38	122,28		04812	16
	98	121,92	124,82		04912	16
	100	124,46	127,36		05012	16

For ordering, see "How to order", page 31.

## DIMENSIONAL DATA: PANEL SOCKETS, with supports

For economy version of panel sockets, see page 49

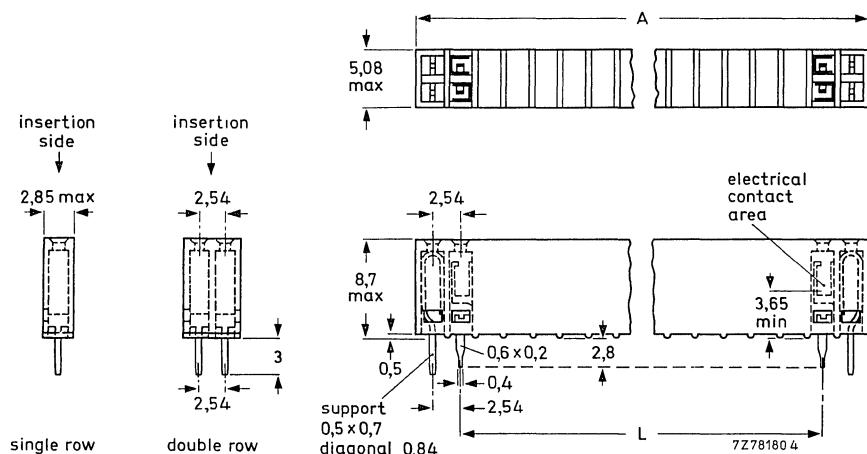


Fig. 6 Panel socket with supports; see Table 3 for dimensions A and L.

Table 3: Panel sockets with supports

number of contacts		L	A	catalogue number 2422 062 . . . .		smallest packing quantity
single row	double row			single row	double row	
2	4	2,54	10,52	00272	00282	200
3	6	5,08	13,06	00372	00382	160
4	8	7,62	15,60	00472	00482	136
5	10	10,16	18,14	00572	00582	120
6	12	12,70	20,68	00672	00682	104
7	14	15,24	23,22	00772	00782	88
8	16	17,78	25,76	00872	00882	80
9	18	20,32	28,30	00972	00982	72
10	20	22,86	30,84	01072	01082	64

Table 3: Panel sockets with supports (continued)

number of contacts		L	A	catalogue number 2422 062 . . . .		smallest packing quantity
single row	double row			single row	double row	
11	22	25,40	33,38	01172	01182	64
12	24	27,94	35,92	01272	01282	56
13	26	30,48	38,46	01372	01382	56
14	28	33,02	41,00	01472	01482	48
15	30	35,56	43,54	01572	01582	48
16	32	38,10	46,08	01672	01682	48
17	34	40,64	48,62	01772	01782	40
18	36	43,18	51,16	01872	01882	40
19	38	45,72	53,70	01972	01982	40
20	40	48,26	56,24	02072	02082	32
21	42	50,80	58,78	02172	02182	32
22	44	53,34	61,32	02272	02282	32
23	46	55,88	63,86	02372	02382	32
24	48	58,42	66,40	02472	02482	32
25	50	60,96	68,94	02572	02582	32
26	52	63,50	71,48	02672	02682	24
27	54	66,04	74,02	02772	02782	24
28	56	68,58	76,56	02872	02882	24
29	58	71,12	79,10	02972	02982	24
30	60	73,66	81,64	03072	03082	24
31	62	76,20	84,18	03172	03182	24
32	64	78,74	86,72	03272	03282	24
		66 68 70	81,28 83,82 86,36	± 0,30	03382 03482 03582	24 24 16
		72 74 76 78 80	88,90 91,44 93,98 96,52 99,06		03682 03782 03882 03982 04082	16 16 16 16 16
		82 84 86 88 90	101,60 104,14 106,86 109,22 111,76		04182 04282 04382 04482 04582	16 16 16 16 16
		92 94 96 98 100	114,30 116,84 119,38 121,92 124,46		04682 04782 04882 04982 05082	16 16 16 16 16

For ordering, see "How to order", page 31.

## DIMENSIONAL DATA: MOUNTING BLOCKS

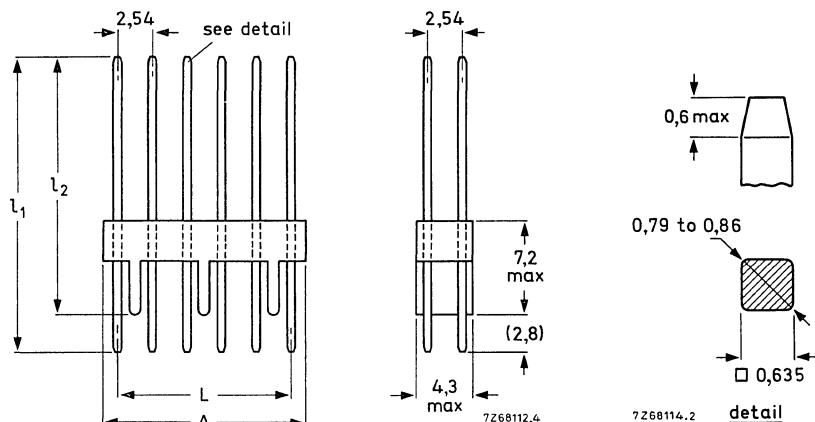
Fig. 7 Mounting block for pins, double row. See Table 4 for dimensions  $l_1$ ,  $l_2$ , A and L.

Table 4 Mounting blocks for pins

number of contacts	$l_1$	$l_2$	L	$A_{max}$	catalogue number	smallest packing quantity
2 x 10	$22 \pm 0,1$	$19,2 \pm 0,2$	$22,86 \pm 0,1$	25,4	4322 027 73750	50
2 x 6	$22 \pm 0,1$	$19,2 \pm 0,2$	$12,70 \pm 0,1$	15,2	4332 026 28030	90
2 x 4	$22 \pm 0,1$	$19,2 \pm 0,2$	$7,62 \pm 0,1$	10,1	4332 026 28040	135

For ordering, see "How to order", page 31.

**DIMENSIONAL DATA: MALE HEADERS WITH STRAIGHT PINS**

These male headers are available with the following pin lengths:

- 11 mm, especially for use with jumpers F095;
- 12 mm, especially for use with board edge sockets and panel sockets;
- 22 mm, especially for use with panel sockets and bottom-entry sockets.

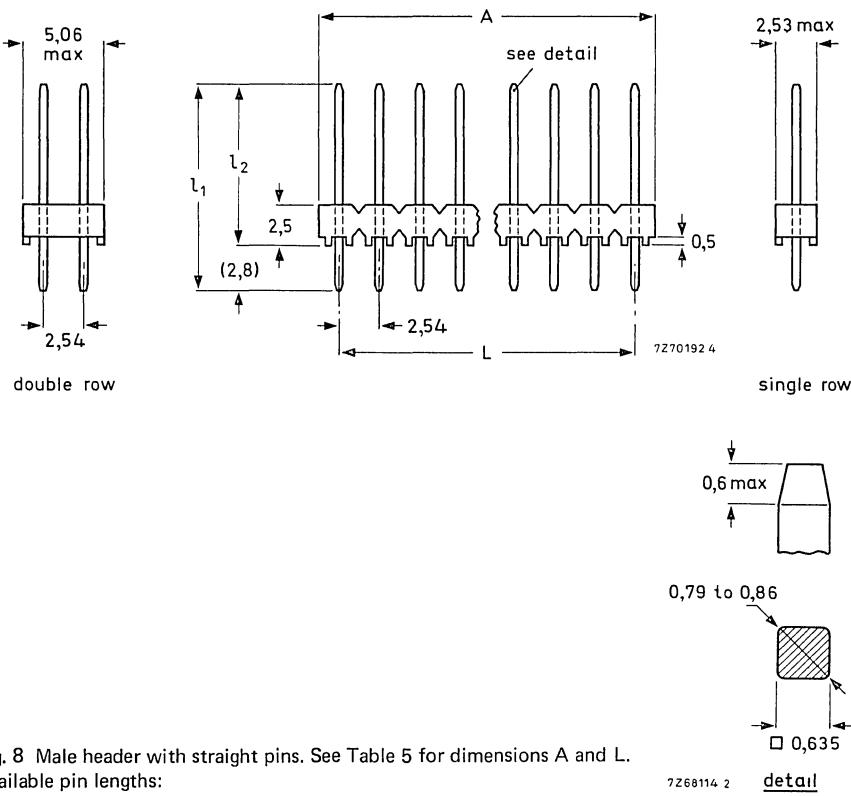


Fig. 8 Male header with straight pins. See Table 5 for dimensions A and L.

Available pin lengths:

$$l_1 = 11 \pm 0,1 \text{ mm}, l_2 = 8,2 \pm 0,2 \text{ mm};$$

$$l_1 = 12 \pm 0,1 \text{ mm}, l_2 = 9,2 \pm 0,2 \text{ mm};$$

$$l_1 = 22 \pm 0,1 \text{ mm}, l_2 = 19,2 \pm 0,2 \text{ mm}.$$

Other pin lengths are available on request.

7268114 2

detail

Table 5: Male headers with straight pins

number of contacts		L	A	catalogue number 2422 062 . . . .				smallest packing quantity		
				pin length l <sub>1</sub> = 11 mm		pin length l <sub>1</sub> = 12 mm				
single row	double row			single row	double row	single row	double row			
2	4	2,54		5,08		60241	60251	40241	40251	580*
3	6	5,08		7,62		60341	60351	40341	40351	250*
4	8	7,62		10,16		60441	60451	40441	40451	250**
5	10	10,16		12,70		60541	60551	40541	40551	168
6	12	12,70		15,24		60641	60651	40641	40651	136
7	14	15,24		17,78		60741	60751	40741	40751	120
8	16	17,78		20,32		60841	60851	40841	40851	104
9	18	20,32		22,86		60941	60951	40941	40951	96
10	20	22,86		25,40		61041	61051	41041	41051	80
11	22	25,40		27,94		61141	61151	41141	41151	72
12	24	27,94		30,48		61241	61251	41241	41251	72
13	26	30,48		33,02		61341	61351	41341	41351	64
14	28	33,02		35,56		61441	61451	41441	41451	56
15	30	35,56		38,10		61541	61551	41541	41551	56
16	32	38,10		40,64		61641	61651	41641	41651	48
17	34	40,64	± 0,15	43,18	± 0,45	61741	61751	41741	41751	48
18	36	43,18		45,72		61841	61851	41841	41851	48
19	38	45,72		48,26		61941	61951	41941	41951	40
20	40	48,26		50,80		62041	62051	42041	42051	40
21	42	50,80		53,34		62141	62151	42141	42151	40
22	44	53,34		55,88		62241	62251	42241	42251	32
23	46	55,88		58,42		62341	62351	42341	42351	32
24	48	58,42		60,96		62441	62451	42441	42451	32
25	50	60,96		63,50		62541	62551	42541	42551	32
26	52	63,50		66,04		62641	62651	42641	42651	32
27	54	66,04		68,58		62741	62751	42741	42751	32
28	56	68,58		71,12		62841	62851	42841	42851	24
29	58	71,12		73,66		62941	62951	42941	42951	24
30	60	73,66		76,20		63041	63051	43041	43051	24
31	62	76,20		78,74		63141	63151	43141	43151	24
32	64	78,74		81,28		63241	63251	43241	43251	24

Note: A Post-Office version of the male header with pin length of 11 mm is available; for ordering replace the last digit of the catalogue number by 2.

\* 1000 for single row.

\*\* 500 for single row.

Table 5 Male headers with straight pins (continued)

number of contacts		L	A	catalogue number 2422 062 . . . .		smallest packing quantity
				pin length l <sub>1</sub> = 22 mm		
single row	double row			single row	double row	
2	4	2,54	5,08	50241	50251	250
3	6	5,08	7,62	50341	50351	170
4	8	7,62	10,16	50441	50451	130
5	10	10,16	12,70	50541	50551	105
6	12	12,70	15,24	50641	50651	85
7	14	15,24	17,78	50741	50751	75
8	16	17,78	20,32	50841	50851	65
9	18	20,32	22,86	50941	50951	55
10	20	22,86	25,40	51041	51051	50
11	22	25,40	27,94	51141	51151	45
12	24	27,94	30,48	51241	51251	40
13	26	30,48	33,02	51341	51351	40
14	28	33,02	35,56	51441	51451	35
15	30	35,56	38,10	51541	51551	35
16	32	38,10	40,64	51641	51651	30
17	34	40,64	43,18	51741	51751	30
18	36	43,18	45,72	51841	51851	25
19	38	45,72	48,26	51941	51951	25
20	40	48,26	50,80	52041	52051	25
21	42	50,80	53,34	52141	52151	25
22	44	53,34	55,88	52241	52251	20
23	46	55,88	58,42	52341	52351	20
24	48	58,42	60,96	52441	52451	20
25	50	60,96	63,50	52541	52551	20
26	52	63,50	66,04	52641	52651	20
27	54	66,04	68,58	52741	52751	20
28	56	68,58	71,12	52841	52851	15
29	58	71,12	73,66	52941	52951	15
30	60	73,66	76,20	53041	53051	15
31	62	76,20	78,74	53141	53151	15
32	64	78,74	81,28	53241	53251	15

For ordering, see "How to order", page 31.

## DIMENSIONAL DATA: MALE HEADERS WITH 90° ANGLED PINS

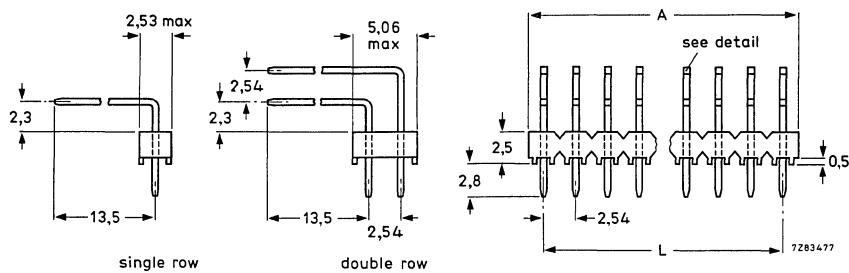


Fig. 9 Male header with 90° angled pins; see Table 6 for dimensions A and L.

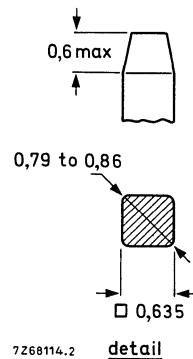


Table 6: Male headers with 90° angled pins

number of contacts		L	A	catalogue number 2422 062 .....		smallest packing quantity	
single row	double row			single row	double row	single row	double row
2	4	2,54	5,08	70201	70211	400	300
3	6	5,08	7,62	70301	70311	272	204
4	8	7,62	10,16	70401	70411	208	156
5	10	10,16	12,70	70501	70511	168	126
6	12	12,70	15,24	70601	70611	136	102
7	14	15,24	17,78	70701	70711	120	90
8	16	17,78	20,32	70801	70811	104	78
9	18	20,32	22,86	70901	70911	88	66
10	20	22,86	25,40	71001	71011	80	60
11	22	25,40	27,94	71101	71111	72	54
12	24	27,94	30,48	71201	71211	64	48
13	26	30,48	33,02	71301	71311	64	48
14	28	33,02	35,56	71401	71411	56	42
15	30	35,56	38,10	71501	71511	56	42
16	32	38,10	40,64	71601	71611	48	36
17	34	40,64	43,18	71701	71711	48	36
18	36	43,18	45,72	71801	71811	40	30
19	38	45,72	48,26	71901	71911	40	30
20	40	48,26	50,80	72001	72011	40	30
21	42	50,80	53,34	72101	72111	40	30
22	44	53,34	55,88	72201	72211	32	24
23	46	55,88	58,42	72301	72311	32	24
24	48	58,42	60,96	72401	72411	32	24
25	50	60,96	63,50	72501	72511	32	24
26	52	63,50	66,04	72601	72611	32	24
27	54	66,04	68,58	72701	72711	32	24
28	56	68,58	71,12	72801	72811	24	18
29	58	71,12	73,66	72901	72911	24	18
30	60	73,66	76,20	73001	73011	24	18
31	62	76,20	78,74	73101	73111	24	18
32	64	78,74	81,28	73201	73211	24	18

For ordering, see "How to order", page 31.

## MOUNTING

Hole pattern on printed boards

Dimensions in mm

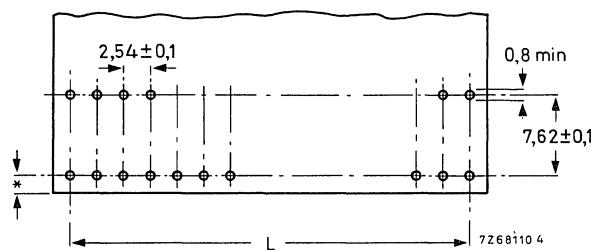


Fig. 10 Hole pattern for board edge sockets. See Table 1, pages 18 and 19 for dimension L. The dimension marked \* is determined by customer application (min. 2 mm).

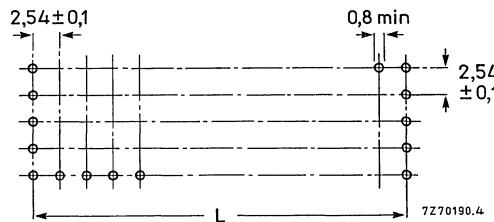


Fig. 11 Hole pattern for double-row panel sockets without supports. See Table 2, pages 20 and 21 for dimension L.

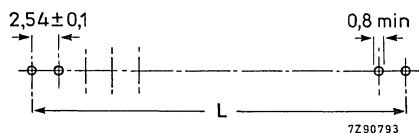


Fig. 12 Hole pattern for single-row panel sockets without supports. See Table 2, pages 20 and 21 for dimension L.

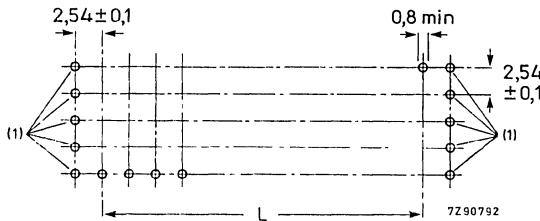


Fig. 13 Hole pattern for double-row panel sockets with supports. See Table 3, pages 22 and 23 for dimension L.

(1) These holes are intended for the supports of the panel socket (diagonal  $0,84 \pm 0,02$  mm).

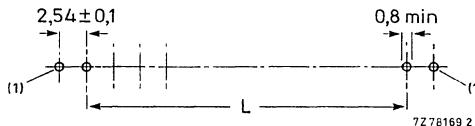


Fig. 14 Hole pattern for single-row panel sockets with supports. See Table 3, pages 22 and 23 for dimension L.

(1) These holes are intended for the supports of the panel socket (diagonal  $0,84 \pm 0,02$  mm).

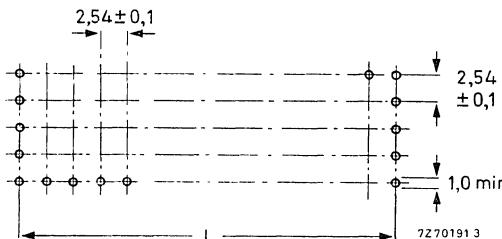


Fig. 15 Hole pattern for male headers. See Table 5 or 6, pages 26, 27 or 29, for dimension L.

## HOW TO ORDER

Order the connectors by quoting the 12-digit catalogue number as shown in Tables 1 to 6. Note that the catalogue number applies to one piece, and take into account the smallest packing quantity; please order in multiples of this quantity.

## Example

100 panel sockets without supports, with 16 contacts, double row, should be ordered as:

104 x 2422 062 00812.



## MODULAR CONNECTOR SYSTEM

### bottom-entry sockets

- For basic grid of 2,54 mm (0,1 in)

#### QUICK REFERENCE DATA

Contact pitch	2,54 mm (0,1 in)
Number of contacts	
single row	2 to 32
double row	4 to 20
Board thickness	1,6 mm
Terminations	dip-solder pins
Current at $T_{amb} = 20 \text{ }^{\circ}\text{C}$	2 A
Mechanical endurance	25 insertions
Climatic category, IEC 68	55/125/21

#### APPLICATION

For use with male headers of the F095 modular connector system, for parallel or perpendicular interconnection of printed-wiring boards.

#### DESCRIPTION

The bottom-entry socket is a female connector of the F095 modular connector system. It has a body of flame retardant, glass-fibre-filled thermoplastic polyester material. The socket is provided with tinned dip-solder terminations, which have to be bent after insertion in the printed-wiring board.

A silicone rubber solder stop is available to prevent entry of solder into the springs during the soldering process.

The contact springs are phosphor bronze; the electrical contact surfaces are gold-on-nickel plated.

**ELECTRICAL, MECHANICAL AND ENVIRONMENTAL DATA**

All data given in the F095 data sheet are valid, except those mentioned below.

Current at  $T_{amb} = 20^{\circ}\text{C}$

2 A

Number of contacts

single row

2 to 32

double row

4 to 20

Mechanical endurance

25 insertions, according to IEC 512, test 9a

Connector body material

glass-fibre-filled thermoplastic

Contact springs

material

phosphor bronze

shape

solid cantilever

finish of contact surfaces

rolled-on gold on nickel plate

type of termination

dip-solder

finish of termination

tinned

**DIMENSIONAL DATA**

Dimensions in mm

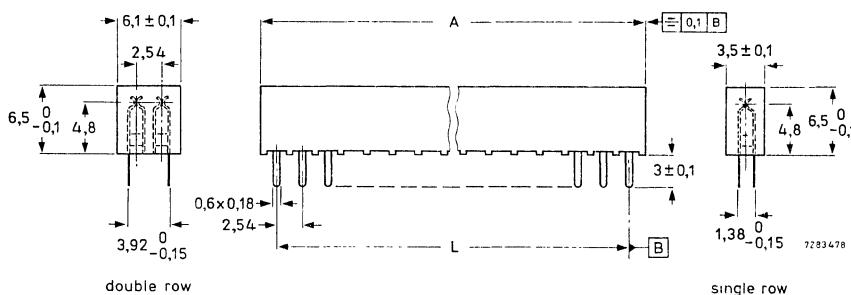


Fig. 1 Bottom-entry socket. See Table 1 for dimensions A and L.

Table 1

number of contacts		L	A	catalogue number 2422 062 . . . .		smallest packing quantity
single row	double row			single row	double row	
2	4	2,54	6,14	80201	80211	378
3	6	5,08	8,68	80301	80311	270
4	8	7,62	11,22	80401	80411	216
5	10	10,16	13,76	80501	80511	171
6	12	12,70	16,30	80601	80611	144
7	14	15,24	18,84	80701	80711	126
8	16	17,78	21,38	80801	80811	108
9	18	20,32	23,92	80901	80911	99
10	20	22,86	26,46	81001	81011	90
11		25,40	29,00	81101		81
12		27,94	31,54	81201		72
13		30,48	34,08	81301		72
14		33,02	36,62	81401		63
15		35,56	39,16	81501		63
16		38,10	41,70	81601		54
17		40,64	44,24	81701		54
18		43,18	46,78	81801		45
19		45,72	49,32	81901		45
20		48,26	51,86	82001		45
21		50,80	54,40	82101		45
22		53,34	56,94	82201		36
23		55,88	59,48	82301		36
24		58,42	62,02	82401		36
25		60,96	64,56	82501		36
26		63,50	67,10	82601		36
27		66,04	69,64	82701		27
28		68,58	72,18	82801		27
29		71,12	74,72	82901		27
30		73,66	77,26	83001		27
31		76,20	79,80	83101		27
32		78,74	82,34	83201		27

**HOW TO ORDER**

Order the bottom-entry sockets by quoting the 12-digit catalogue number as shown in the table above. Note that the catalogue number applies to one piece, and take into account the smallest packing quantity; please order in multiples of this quantity.

**Example**

80 bottom-entry sockets with 30 contacts, single row, should be ordered as:

81 x 2422 062 83001.

## MOUNTING

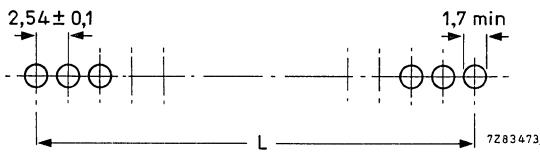


Fig. 2 Hole pattern for single-row bottom-entry sockets; see Table 1 for dimension L.

Dimensions in mm

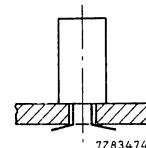


Fig. 3 Single-row bottom-entry socket in mounted position.

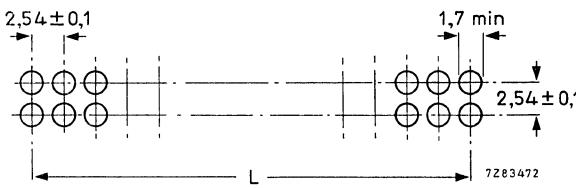


Fig. 4 Hole pattern for double-row bottom-entry sockets; see Table 1 for dimension L.

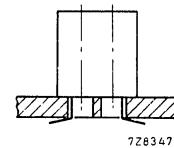


Fig. 5 Double-row bottom-entry socket in mounted position.

## ACCESSORIES

A silicone rubber solder stop, inserted in the holes of the printed-wiring board before dip-soldering, prevents entry of solder into the bottom-entry socket.

Catalogue number of strip with solder stops,

single row: 2422 062 89001; smallest packing quantity: 100,  
double row: 2422 062 89011; smallest packing quantity: 100.

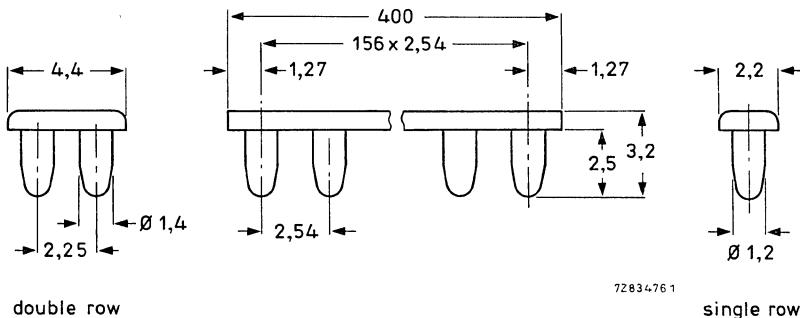


Fig. 6 Strip with solder stops for bottom-entry socket.

## MODULAR CONNECTOR SYSTEM

block header with 90° angled pins

- For basic grid of 2,54 mm (0,1 in)

### QUICK REFERENCE DATA

Contact pitch	2,54 mm (0,1 in)
Number of contacts, double row	4 to 60
Board thickness	1,6 mm
Terminations	dip-solder pins
Current at $T_{amb} = 20^{\circ}\text{C}$	2 A
Mechanical endurance	200 insertions
Climatic category, IEC 68	55/125/21

### APPLICATION

These block headers are used with female cable connectors for connecting the in- and outgoing wiring to electronic circuits. They are specially used in applications where mounting space is limited.

### DESCRIPTION

These double-row block headers are parts of the F095 modular connector system. They have a body of flame retardant, glass-fibre-filled thermoplastic polyester material. They are provided with gold-on-nickel plated brass contacts.

For keying reasons block headers with an odd number of contacts are supplied.

## ELECTRICAL, MECHANICAL AND ENVIRONMENTAL DATA

All data given in the F095 data sheet are valid, except those mentioned below.

Current at $T_{amb} = 20^{\circ}\text{C}$	2 A
Number of contacts, double row	4 to 60
Mechanical endurance	200 insertions
Connector body	
material	glass-fibre-filled thermoplastic
colour	grey (RAL7032)
Contact pins	
material	brass
shape	square pin, chamfered at both ends
finish of contact surface	gold plate on nickel plate
type of termination	dip-solder pin
finish of termination	gold flash on nickel plate

## DIMENSIONAL DATA

Dimensions in mm

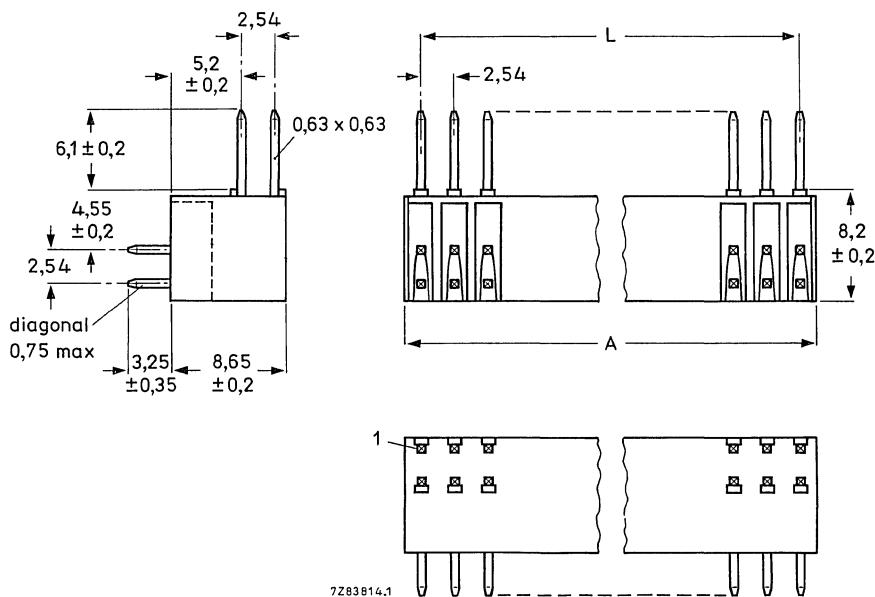


Fig. 1 Block header with 90° angled pins; see Table 1 for dimensions A and L.  
For block headers with an odd number of contacts, contact pin 1 is omitted.

Table 1

number of contacts, double row	L tol. ± 0,1	A tol. + 0,3 - 0,5	catalogue number 2422 062	smallest packing quantity	number of contacts, double row	L tol. ± 0,1	A tol. + 0,3 - 0,5	catalogue number 2422 062	smallest packing quantity
4	2,54	6,08	90411	301					
5	5,08	8,62	90511	217					
6	5,08	8,62	90611	217	36	43,18	46,72	93611	35
7	7,62	11,16	90711	168	37	45,72	49,26	93711	35
8	7,62	11,16	90811	168	38	45,72	49,26	93811	35
9	10,16	13,70	90911	133	39	48,26	51,80	93911	35
10	10,16	13,70	91011	133	40	48,26	51,80	94011	35
11	12,70	16,24	91111	112	41	50,80	54,34	94111	35
12	12,70	16,24	91211	112	42	50,80	54,34	94211	35
13	15,24	18,78	91311	98	43	53,34	56,88	94311	28
14	15,24	18,78	91411	98	44	53,34	56,88	94411	28
15	17,78	21,32	91511	84	45	55,88	59,42	94511	28
16	17,78	21,32	91611	84	46	55,88	59,42	94611	28
17	20,32	23,86	91711	77	47	58,42	61,96	94711	28
18	20,32	23,86	91811	77	48	58,42	61,96	94811	28
19	22,86	26,40	91911	70	49	60,96	64,50	94911	28
20	22,86	26,40	92011	70	50	60,96	64,50	95011	28
21	25,40	28,94	92111	63	51	63,50	67,04	95111	28
22	25,40	28,94	92211	63	52	63,50	67,04	95211	28
23	27,94	31,48	92311	56	53	66,04	69,58	95311	21
24	27,94	31,48	92411	56	54	66,04	69,58	95411	21
25	30,48	34,02	92511	56	55	68,58	72,12	95511	21
26	30,48	34,02	92611	56	56	68,58	72,12	95611	21
27	33,02	36,56	92711	49	57	71,12	74,66*	95711	21
28	33,02	36,56	92811	49	58	71,12	74,66*	95811	21
29	35,56	39,10	92911	49	59	73,66	77,20**	95911	21
30	35,56	39,10	93011	49	60	73,66	77,20**	96011	21
31	38,10	41,64	93111	42					
32	38,10	41,64	93211	42					
33	40,64	44,18	93311	42					
34	40,64	44,18	93411	42					
35	43,18	46,72	93511	35					

\* Provisionally 73,66 mm.

\*\* Provisionally 76,20 mm.

**HOW TO ORDER**

Order the block headers by quoting the 12-digit catalogue number as shown in table 1 (previous page). Note that the catalogue number applies to one piece, and take into account the smallest packing quantity; please order in multiples of this quantity.

**Example**

40 block headers with 55 contacts, double row, should be ordered as:

42 x 2422 062 95511.

**MOUNTING**

Dimensions in mm

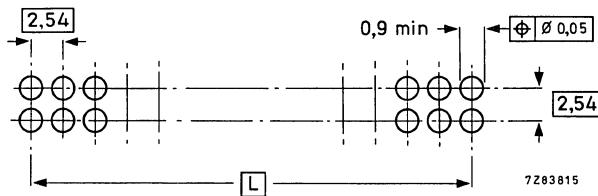


Fig. 2 Hole pattern for block headers with 90° angled pins; see Table 1 for dimension L.

## MODULAR CONNECTOR SYSTEM

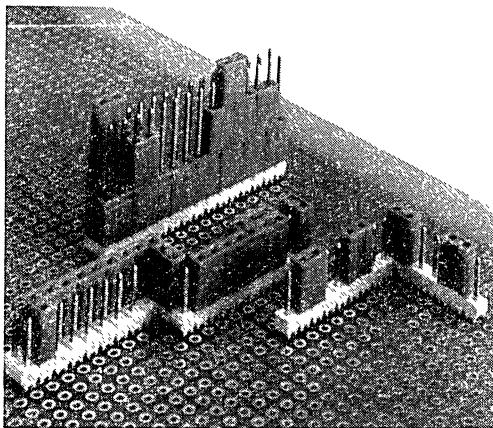
## jumper

- For basic grid of 2,54 mm (0,1 in)

## QUICK REFERENCE DATA

Contact pitch	2,54 mm (0,1 in)
Number of contacts	2 (interconnected)
Current at $T_{amb} = 20^{\circ}\text{C}$	2 A
Mechanical endurance	50 insertions
Climatic category, IEC 68	55/125/21

820818-10-10



## APPLICATION

This jumper is for interconnection of two adjacent pins in electronic circuits, thus providing flexibility in circuit programming. It is very suitable for circuits with high-density packaging. The jumper is intended for use with the F095 male headers with straight 11 mm pins, giving 9 mm profile height to this combination.

## DESCRIPTION

This jumper is a female connector with a body of glass-fibre-filled thermoplastic. The contact springs are of phosphor bronze; the contact surfaces are gold on nickel plate. The jumper mates with 0,635 mm square pins of min. 5,7 mm length. The pins can pass all the way through the jumper, enabling stacking of two or more jumpers on the same pin. The openings, at the top of the jumper allow inspection of the contacts with a test probe. The jumper is available in four colours.

**ELECTRICAL DATA**Current at  $T_{\text{amb}} = 20^{\circ}\text{C}$ 

2 A

Derated current curve

according to IEC 512,  
test 5b, see Fig. 2Contact resistance (including material  
resistance) at 10 mA, max. 20 mV (peak)  
open circuit voltage, 1 kHzinitially  
after tests $\leq 20 \text{ m}\Omega$   
 $\leq 25 \text{ m}\Omega$ 

Insulation resistance

initially  
after tests $> 5 \cdot 10^3 \text{ M}\Omega$   
 $> 10^3 \text{ M}\Omega$ 

Creepage distances and clearances (see Fig. 1)

between jumpers A and B  
between jumpers B and C  
between jumpers C and D  
between jumpers D and E  
between jumpers E and F $\geq 1,5 \text{ mm}$   
 $\geq 0,7 \text{ mm}$   
 $\geq 1,2 \text{ mm}$   
 $\geq 1,7 \text{ mm}$   
 $\geq 1,0 \text{ mm}$ Proof voltage for 1 min, at  $20^{\circ}\text{C}$   
between contact and body surface

750 V (r.m.s.), 50 Hz

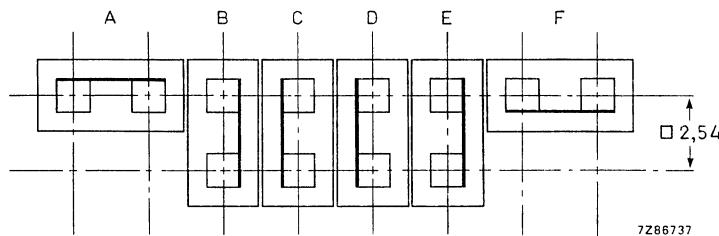


Fig. 1 Arrangement of jumpers on 2,54 mm grid.

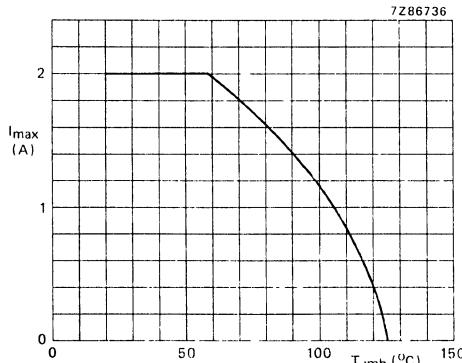


Fig. 2 Maximum current as a function of ambient temperature (20% derated).

**MECHANICAL DATA**

Contact pitch	2,54 mm (0,1 in)
Number of contacts	2 (interconnected)
Insertion/withdrawal force, per contact	≤ 3 N
Mechanical endurance	50 insertions; according to IEC 512, test 9a
Connector body material	glass-fibre-filled thermoplastic
Contact springs	
material	phosphor bronze
shape	see Fig. 3
finish of contact surface	gold on nickel plate
Mass	0,1 g
Shock	according to IEC 512, test 6c, 50 g, 11 ms (jumper in free position on male header)
Vibration	according to IEC 512, test 6d, 10 to 2000 Hz, 1,5 mm (p-p) or 10g, 3 directions, 2 h per direction (jumper in free position on male header)

**ENVIRONMENTAL DATA**

Climatic category (IEC 68)	55/125/21
Ambient temperature range	-55 to + 125 °C
Damp heat, steady state	according to IEC 512, test 11c, 21 days, 40 °C, R.H. 90 to 95%
Flammability	according to UL94, category V-1

## DIMENSIONAL DATA

Dimensions in mm

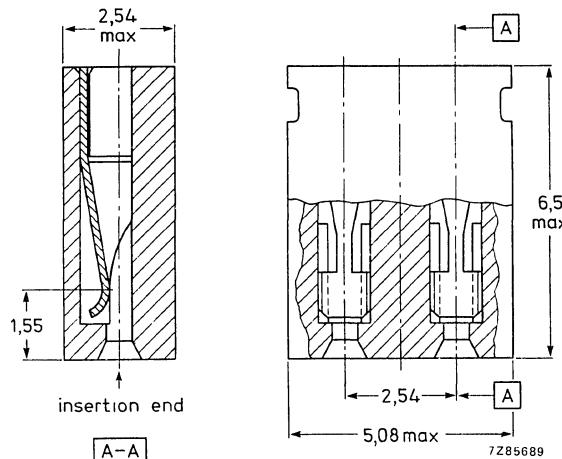


Fig. 3.

## HOW TO ORDER

Order the jumper by quoting the 12-digit catalogue number as shown in the Table below. Note that the catalogue number applies to one piece, and take into account the smallest packing quantity; please order in multiples of this quantity.

colour of jumper	catalogue number	smallest packing quantity
yellow	2422 062 97014	500
grey	97024	500
red	97034	500
blue	97044	500

## MODULAR CONNECTOR SYSTEM

board edge sockets, economy version

- For basic grid of 2,54 mm (0,1 in)

### QUICK REFERENCE DATA

Contact pitch	2,54 mm (0,1 in)
Number of contacts	
single row	2 to 32
double row	4 to 130
Board thickness	1,6 mm
Terminations	dip-solder pins
Current at T <sub>amb</sub> = 20 °C	3 A
Mechanical endurance	50 insertions
Climatic category, IEC 68	55/125/21

These board edge sockets are the economy versions of the standard type of board edge sockets of the F095 modular connector system.

All data on board edge sockets given in the F095 data sheet are valid, except those mentioned below.

### MECHANICAL DATA

Mechanical endurance	50 insertions, according to IEC 512, test 9a
Contacts	
material	phosphor bronze
finish of contact surfaces	gold on nickel
type of termination	dip-solder pin
finish of termination	tinned

## DIMENSIONAL DATA

Dimensions in mm

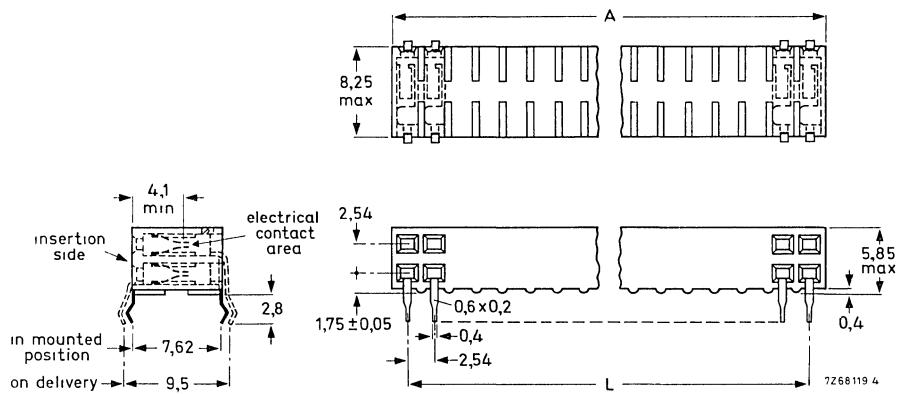


Fig. 1 Board edge socket, double row. See Table 1 for dimensions A and L.

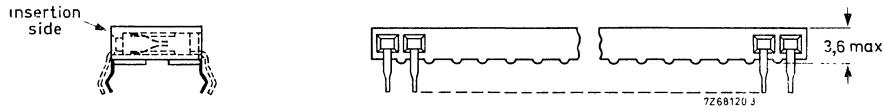


Fig. 2 Board edge socket, single row. Dimensions are identical with those in Fig. 1, except as shown.

Table 1 Board edge sockets, economy version

number of contacts		L	A	catalogue number 2422 062 .....		smallest packing quantity
single row	double row			single row	double row	
2	4	2,54	5,44	10204	10214	432
3	6	5,08	7,98	10304	10314	297
4	8	7,62	10,52	10404	10414	225
5	10	10,16	13,06	10504	10514	180
6	12	12,70	15,60	10604	10614	153
7	14	15,24	18,14	10704	10714	135
8	16	17,78	20,68	10804	10814	117
9	18	20,32	23,22	10904	10914	99
10	20	22,86	25,76	11004	11014	90
11	22	25,40	28,30	11104	11114	81
12	24	27,94	30,84	11204	11214	72
13	26	30,48	33,38	11304	11314	72
14	28	33,02	35,92	11404	11414	63
15	30	35,56	38,46	11504	11514	63
16	32	38,10	41,00	± 0,30	11604	11614
17	34	40,64	43,54		11704	11714
18	36	43,18	46,08	11804	11814	45
19	38	45,72	48,62	11804	11914	45
20	40	48,26	51,16	12004	12014	45
21	42	50,80	53,70	12104	12114	45
22	44	53,34	56,24	12204	12214	36
23	46	55,88	58,78	12304	12314	36
24	48	58,42	61,32	12404	12414	36
25	50	60,96	63,86	12504	12514	36
26	52	63,50	66,40	12604	12614	36
27	54	66,04	68,94	12704	12714	36
28	56	68,58	71,48	12804	12814	27
29	58	71,12	74,02	12904	12914	27
30	60	73,66	76,56	13004	13014	27
31	62	76,20	79,10	13104	13114	27
32	64	78,74	81,64	13204	13214	27

Table 1: Board edge sockets, economy version (continued)

number of contacts		L	A	catalogue number 2422 062 . . . .		smallest packing quantity
single row	double row			single row	double row	
66	81,28		84,18		13314	27
68	83,82		86,72		13414	27
70	86,36		89,26		13514	27
72	88,90		91,80		13614	27
74	91,44		94,34		13714	18
76	93,98		96,88		13814	18
78	96,52		99,42		13914	18
80	99,06		101,96		14014	18
82	101,60		104,50		14114	18
84	104,14		107,04		14214	18
86	106,68		109,58		14314	18
88	109,22		112,12		14414	18
90	111,76		114,66		14514	18
92	114,30		117,20		14614	18
94	116,84		119,74		14714	18
96	119,38		122,28		14814	18
98	121,92	± 0,15	124,82	± 0,30	14914	18
100	124,46		127,36		15014	18
102	127,00		129,90		15114	18
104	129,54		132,44		15214	18
106	132,08		134,98		15314	18
108	134,62		137,52		15414	18
110	137,16		140,06		15514	9
112	139,70		142,60		15614 *	9
114	142,24		145,14		15714 *	9
116	144,78		147,68		15814 *	9
118	147,32		150,22		15914 *	9
120	149,86		152,76		16014 *	9
122	152,40		155,30		16114 *	9
124	154,94		157,84		16214 *	9
126	157,48		160,38		16314 *	9
128	160,02		162,92		16414 *	9
130	162,56		165,46		16514 *	9

## HOW TO ORDER

Order the board edge sockets by quoting the 12-digit catalogue number as shown in the table above. Note that the catalogue number applies to one piece, and take into account the smallest packing quantity; please order in multiples of this quantity.

### Example

80 board edge sockets with 30 contacts, single row, should be ordered as:

81 x 2422 062 13004.

\* Available to special order.

## MODULAR CONNECTOR SYSTEM

panel sockets, economy version

- For basic grid of 2,54 mm (0,1 in)

### QUICK REFERENCE DATA

Contact pitch	2,54 mm (0,1 in)
Number of contacts	
single row	2 to 32
double row	4 to 100
Board thickness	1,6 mm
Terminations	dip-solder pins
Current at $T_{amb} = 20^{\circ}\text{C}$	3 A
Mechanical endurance	50 insertions
Climatic category, IEC 68	55/125/21

These panel sockets are the economy versions of the standard type of panel sockets of the F095 modular connector system.

All data on panel sockets given in the F095 data sheet are valid, except those mentioned below.

### MECHANICAL DATA

Mechanical endurance	50 insertions, according to IEC 512, test 9a
Contacts	
material	phosphor bronze
finish of contact surfaces	gold on nickel
type of termination	dip-solder pin
finish of termination	tinned

## DIMENSIONAL DATA: PANEL SOCKETS, without supports

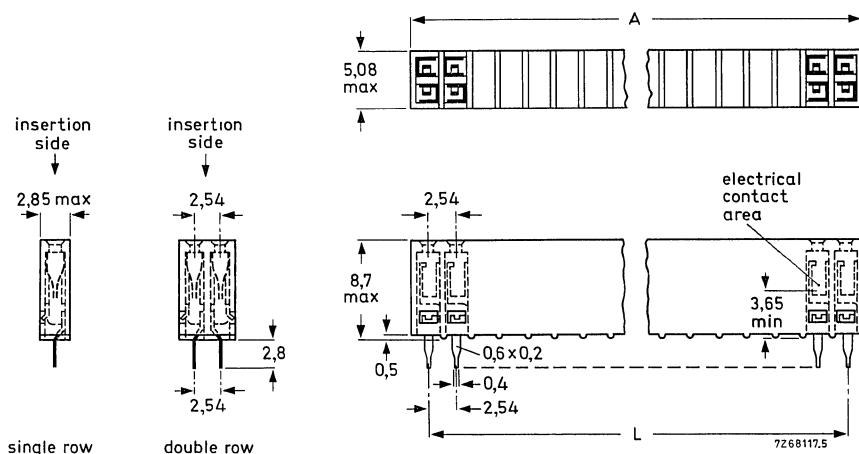


Fig. 1 Panel socket, without supports. See Table 1 for dimensions A and L.

Table 1: Panel sockets without supports

number of contacts		L	A	catalogue number 2422 062 . . . .		smallest packing quantity
single row	double row			single row	double row	
2	4	2,54	5,44	00204	00214	384
3	6	5,08	7,98	00304	00314	264
4	8	7,62	10,52	00404	00414	200
5	10	10,16	13,06	00504	00514	160
6	12	12,70	15,60	00604	00614	136
7	14	15,24	18,14	00704	00714	120
8	16	17,78	20,68	00804	00814	104
9	18	20,32	23,22	00904	00914	88
10	20	22,86	25,76	01004	01014	80

Table 1: Panel sockets, without supports (continued)

number of contacts		L	A	catalogue number 2422 062 . . . .		smallest packing quantity
single row	double row			single row	double row	
11	22	25,40	28,30	01104	01114	72
12	24	27,94	30,84	01204	01214	64
13	26	30,48	33,38	01304	01314	64
14	28	33,02	35,92	01404	01414	56
15	30	35,56	38,46	01504	01514	56
16	32	38,10	41,00	01604	01614	48
17	34	40,64	43,54	01704	01714	48
18	36	43,18	46,08	01804	01814	48
19	38	45,72	48,62	01904	01914	40
20	40	48,26	51,16	02004	02014	40
21	42	50,80	53,70	02104	02114	40
22	44	53,34	56,24	02204	02214	32
23	46	55,88	58,78	02304	02314	32
24	48	58,42	61,32	02404	02414	32
25	50	60,96	63,86	02504	02514	32
26	52	63,50	66,40	02604	02614	32
27	54	66,04	68,94	02704	02714	32
28	56	68,58	71,48	02804	02814	24
29	58	71,12	74,02	02904	02914	24
30	60	73,66	76,56	03004	03014	24
31	62	76,20	79,10	03104	03114	24
32	64	78,74	81,64	03204	03214	24
33	66	81,28	84,18	03304	03314	24
34	68	83,82	86,72	03404	03414	24
	70	86,36	89,26		03514	24
	72	88,90	91,80		03614	24
	74	91,44	94,34		03714	16
	76	93,98	96,88		03814	16
	78	96,52	99,42		03914	16
	80	99,06	101,96		04014	16
	82	101,60	104,50		04114	16
	84	104,14	107,04		04214	16
	86	106,68	109,58		04314	16
	88	109,22	112,12		04414	16
	90	111,76	114,66		04514	16
	92	114,30	117,20		04614	16
	94	116,84	119,74		04714	16
	96	119,38	122,28		04814	16
	98	121,92	124,82		04914	16
	100	124,46	127,36		05014	16

## DIMENSIONAL DATA: PANEL SOCKETS, with supports

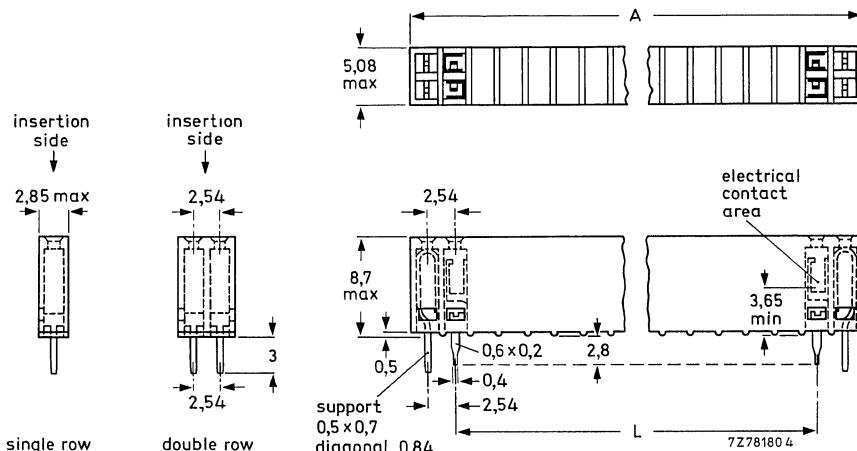


Fig. 2 Panel socket, with supports. See Table 2 for dimensions A and L.

Table 2: Panel sockets, with supports

number of contacts		L	A	catalogue number 2422 062 . . . .		smallest packing quantity
single row	double row			single row	double row	
2	4	2,54	10,52	00274	00284	200
3	6	5,08	13,06	00374	00384	160
4	8	7,62	15,60	00474	00484	136
5	10	10,16	18,14	00574	00584	120
6	12	12,70	20,68	00674	00684	104
7	14	15,24	23,22	00774	00784	88
8	16	17,78	25,76	00874	00884	80
9	18	20,32	28,30	00974	00984	72
10	20	22,86	30,84	01074	01084	64

Table 2: Panel sockets, with supports (continued)

number of contacts		L	A	catalogue number 2422 062 . . . .		smallest packing quantity
single row	double row			single row	double row	
11	22	2540	33,38	01174	01184	64
12	24	27,94	35,92	01274	01284	56
13	26	30,48	38,46	01374	01384	56
14	28	33,02	41,00	01474	01484	48
15	30	35,56	43,54	01574	01584	48
16	32	38,10	46,08	01674	01684	48
17	34	40,64	48,62	01774	01784	40
18	36	43,18	51,16	01874	01884	40
19	38	45,72	53,70	01970	01984	40
20	40	48,26	56,24	02074	02084	32
21	42	50,80	58,78	02174	02184	32
22	44	53,34	61,32	02274	02284	32
23	46	55,88	63,86	02374	02384	32
24	48	58,42	66,40	02274	02484	32
25	50	60,96	68,94	02574	02584	32
26	52	63,50	71,48	02674	02684	24
27	54	66,04	74,02	02774	02784	24
28	56	68,58	76,56	02874	02884	24
29	58	71,12	79,10	02974	02984	24
30	60	73,66	81,64	03074	03084	24
31	62	76,20	84,18	03174	03184	24
32	64	78,74	86,72	03274	03284	24
	66	81,28	89,26		03384	24
	68	83,82	91,80		03484	24
	70	86,36	94,34		03584	16
	72	88,90	96,88		03684	16
	74	91,44	99,42		03784	16
	76	93,98	101,96		03884	16
	78	96,52	104,50		03984	16
	80	99,06	107,04		04084	16
	82	101,60	109,58		04184	16
	84	104,14	112,12		04284	16
	86	106,68	114,66		04384	16
	88	109,22	117,20		04484	16
	90	111,76	119,74		04584	16
	92	114,30	122,28		04684	16
	94	116,84	124,82		04784	16
	96	119,38	127,36		04884	16
	98	121,92	129,90		04984	16
	100	124,46	132,44		05084	16

#### HOW TO ORDER

Order the panel sockets by quoting the 12-digit catalogue number as shown in Tables 1 and 2. Note that the catalogue number applies to one piece, and take into account the smallest packing quantity; please order in multiples of this quantity.

#### Example

100 panel sockets without supports, with 16 contacts, double row, should be ordered as:

104 x 2422 062 00814.

## ACCESSORIES

- For use with two-part printed-wiring connectors F068-I, according to IEC 603-2, DIN 416 and VG 95324.

### Coding parts

A set of coding parts can be supplied. They prevent insertion of the male part into the wrong female part. A set consists of a stainless steel key strip for the male part, a stainless steel keyway strip for the female part, and polycarbonate keys. The strips are fixed to their relevant connector part by means of the connector mounting screws.

The key is pushed over the selected position of the key strip and the corresponding tooth of the keyway strip (Fig. 1a) broken off by means of a pair of pliers. Both strips are marked 1 to 16 inclusive, to facilitate location of the key. Maximum number of key locations with one key is 16; with two keys 120.

For use with male parts with 90° angled pins, the coding parts can be applied in two ways, as shown in Figs 1a and 1b; mounting according to Fig. 1b requires the use of a spacer.

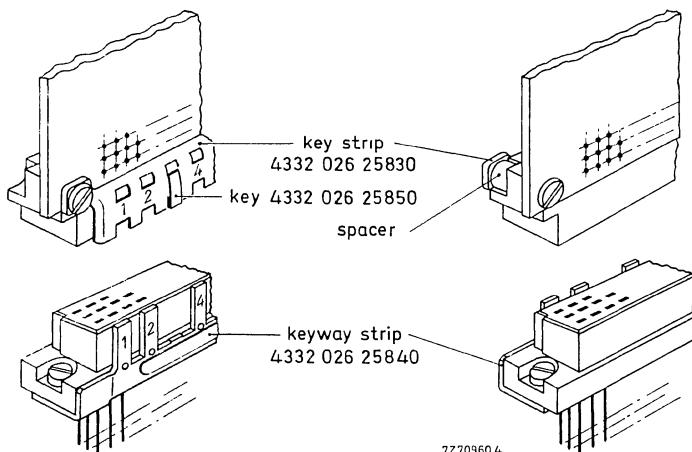


Fig. 1a Coding parts; key strip mounted to solder side of printed board.

Fig. 1b Coding parts; key strip mounted to male part on component side of printed board.

Mass of key strip: approx. 6 g  
of keyway strip: approx. 8 g  
of key: approx. 0,07 g

### Notes

Minimum centre-to-centre distance between two adjacent connectors of style B is 12,7 mm and of style C, 15,24 mm.

The female part is raised 1 mm above the panel (thickness of the keyway strip).

The coding system cannot be applied to a connector with cable hood.

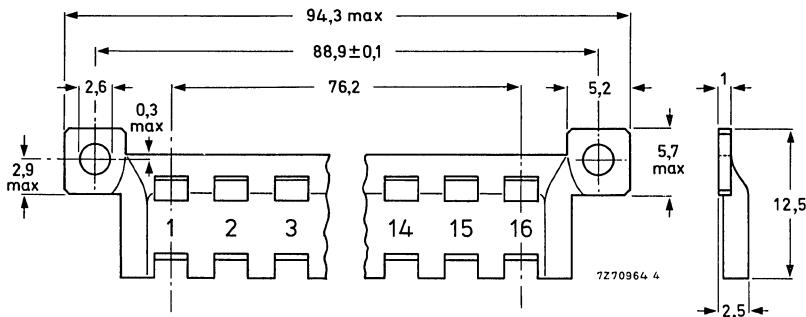


Fig. 2 Key strip.

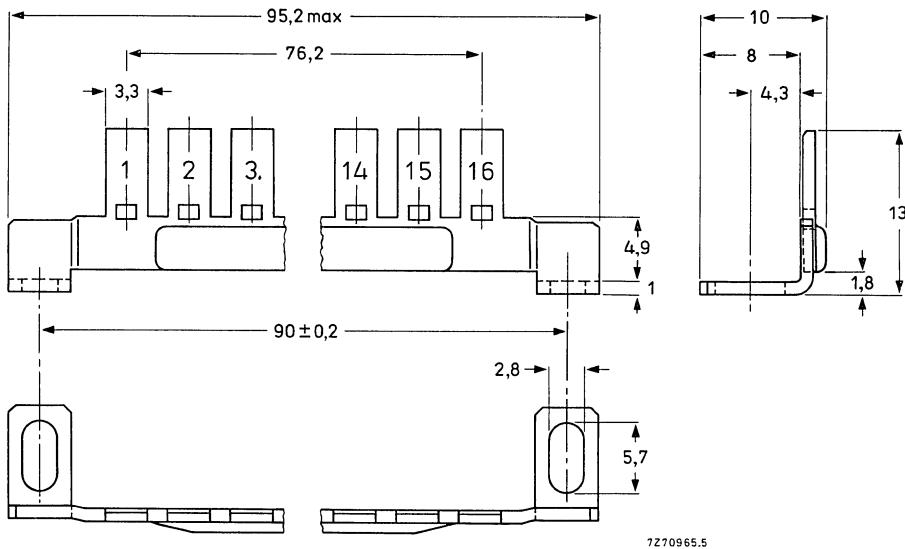


Fig. 3 Keyway strip (comb).

Table 1

accessory	catalogue number	smallest packing quantity
key strip (Fig. 2)	4332 026 25830	10
keyway strip (Fig. 3)	25840	10
key	25850	100

For ordering these accessories, see page 63.

Another set of coding parts for the reverse coding system is:

- a stainless steel key strip for the female part,
- a stainless steel keyway strip for the male part,
- a polycarbonate key.

The strips are fixed in position with the connector mounting screws.

Coding is similar to the coding system specified on pages 55 and 56, but with the roles of the key strip and the keyway strip reversed. The key strip, which is fitted to the female part, can be coded after the panel has been assembled. The coding can be changed or corrected by repositioning the key only, without removing the female part from the panel.

Key strip and keyway strip are marked 1 to 16, to facilitate location of the key. Maximum number of codes with one key is 16, with two keys 120.

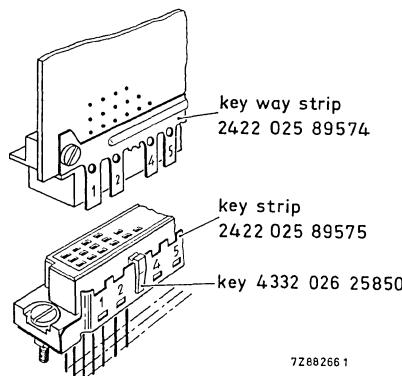


Fig. 4 Reverse coding system.

Table 2

coding part	mass g	catalogue number	smallest packing quantity
keyway strip	8	2422 025 89574	100
key strip	6	2422 025 89575	100
key	0,07	4332 026 25850	100

For ordering the coding parts, see page 63.

#### Notes

Minimum centre-to-centre spacing between adjacent connectors is 12,7 mm for style B and 15,24 mm for style C.

The coding system raises the female part 1 mm above the panel (thickness of the key strip).

The coding system cannot be used if the connector has a cable hood.

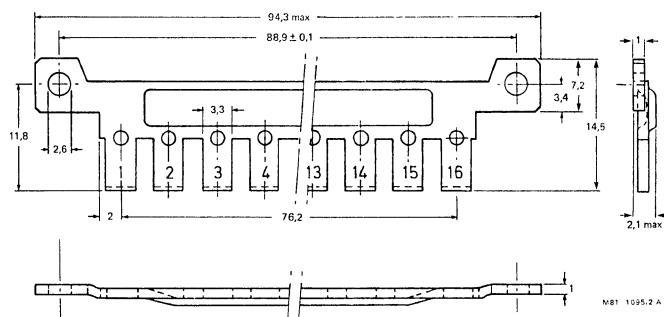


Fig. 5 Keyway strip (comb).

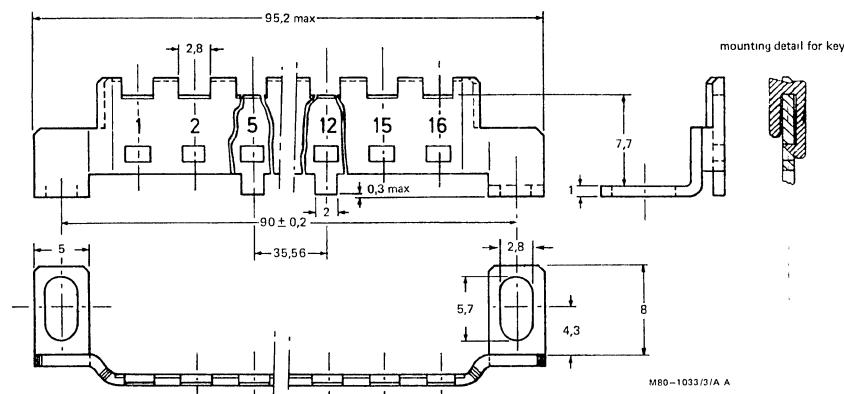


Fig. 6 Key strip.

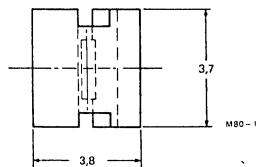
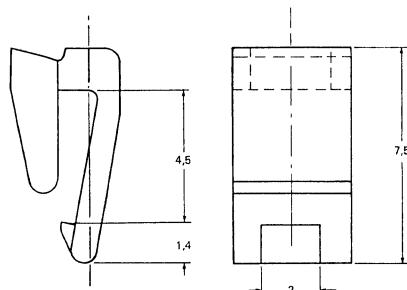


Fig. 7 Key.

**Accessories for female parts with pins for wire wrapping**

For connection of a cable to the wire wrapping pins of a female part, e.g. at the rear of a back panel, a set of accessories is available: receptacle, distance pieces, locking clips and screws M2,5 x 5 (Fig. 8).

The receptacle permits the wrapping of one wrap per pin up to AWG30. Use of female parts of style B requires the use of a packing piece in the receptacle.

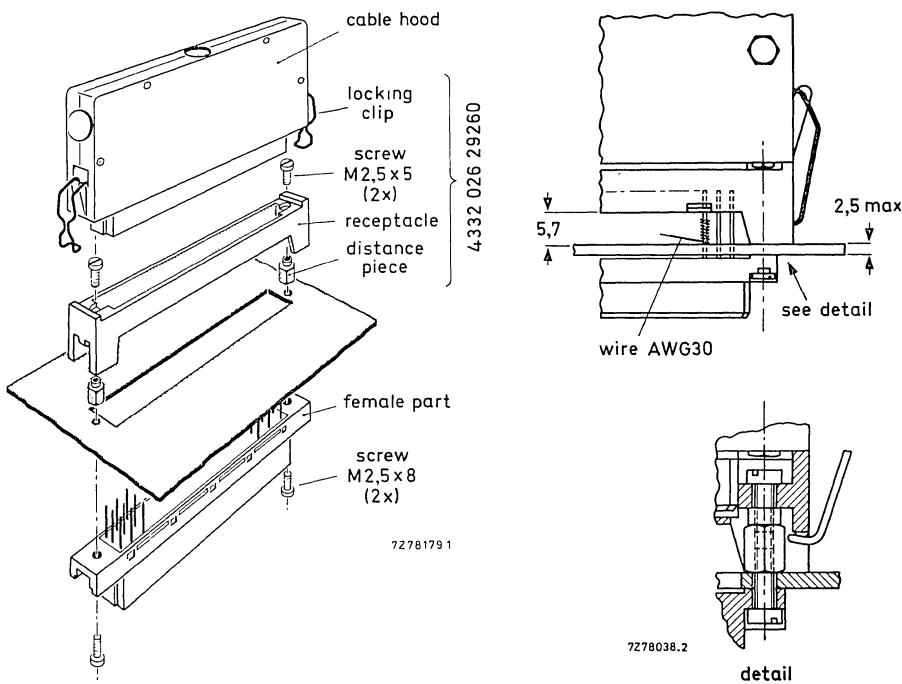


Fig. 8 Accessories for female parts with pins for wire wrapping.

**Table 3**

accessory	catalogue number	smallest packing quantity
set of accessories, consisting of 1 receptacle, 2 distance pieces, 2 locking clips, 2 screws M2,5 x 5 packing piece for use with female parts of style B	4332 026 29260 29090	10 10

For ordering these accessories see page 63.

**Cable hood**

A hood of grey thermoplastic material for cable mounting can be supplied. The hood consists of two identical parts; it is suitable for use with both male and female parts. It is provided with three cable inlets, covered with snap-in plugs. The component parts of the hood are supplied unassembled in a plastic bag. A cable clamp with two screws is supplied with each hood. Separate cable clamps can be supplied under catalogue number 4332 026 30280; please order in multiples of 100. Use of the cable hood with a connector of style B requires the use of a packing piece (4332 026 26070).

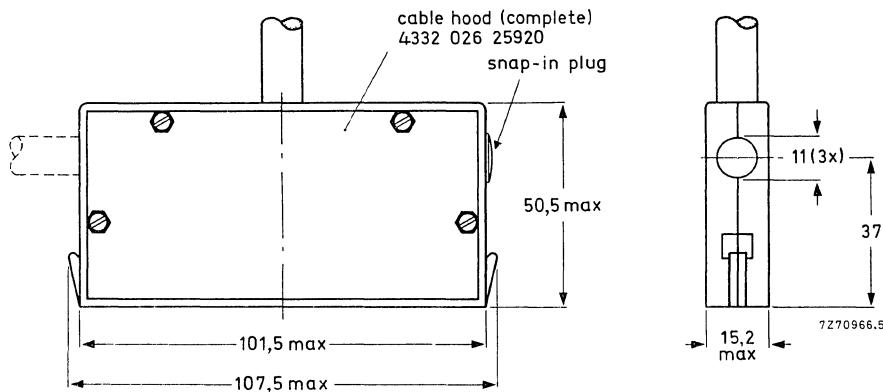


Fig. 9 Assembled cable hood.

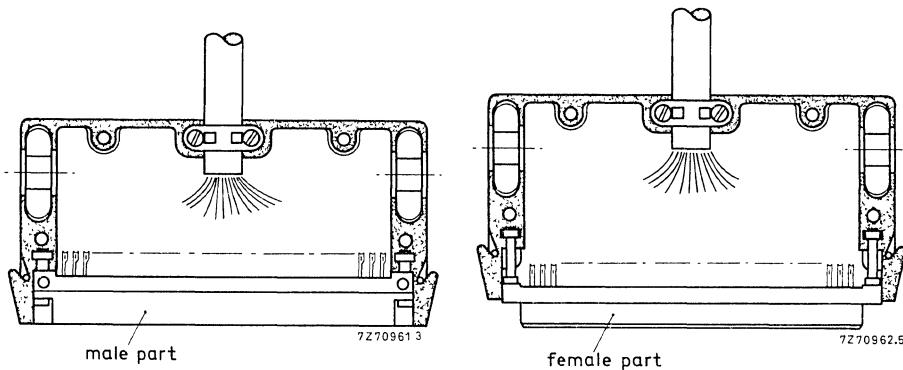


Fig. 10 Fixing of cable to the hood and mounting of the hood to the connector part. Maximum permissible cable diameter is 11 mm (e.g. 96 insulated wires AWG30).

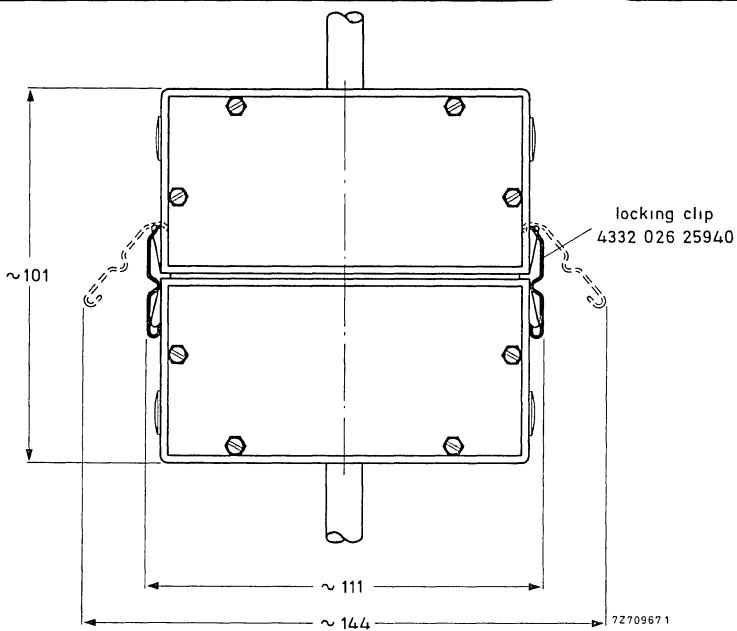


Fig. 11 Cable to cable application.

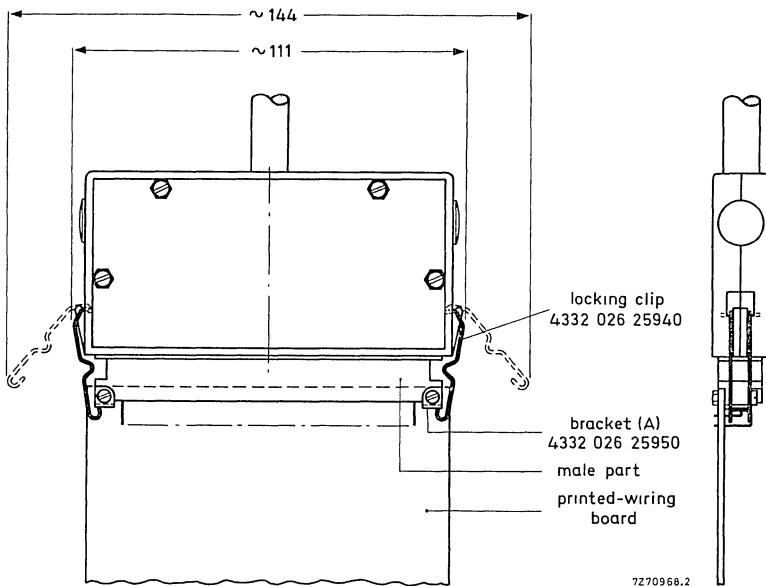


Fig. 12 Cable to printed-wiring board application.

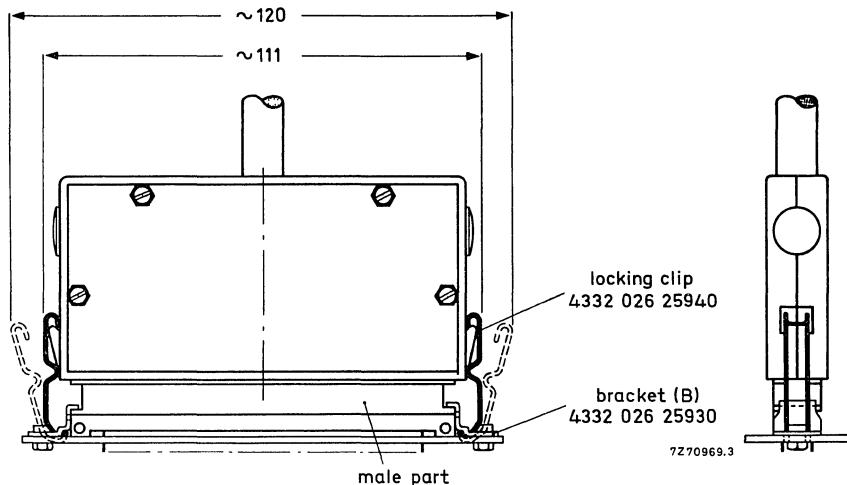


Fig. 13 Cable to panel application.

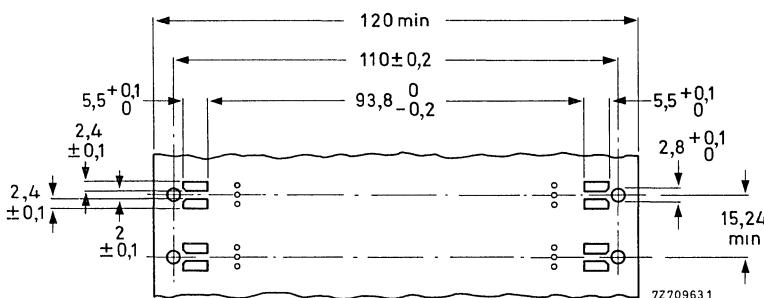


Fig. 14 Hole pattern on printed board for cable to panel application.

Table 4

accessory	catalogue number	smallest packing quantity
cable hood (complete)	4332 026 25920	10
locking clip	25940	10
bracket (B), see Fig. 13	25930	10
bracket (A), see Fig. 12	25950	10
packing piece, for use with connector style B	26070	10

For ordering these accessories see next page.

**How to order accessories**

Order accessories by quoting the 12-digit catalogue numbers as shown in Tables 1 to 4. Note that the catalogue number applies to one piece, and take into account the smallest packing quantity. Please order in multiples of this quantity, with a minimum of 100 pieces.

**Example**

The minimum quantity of parts for the reverse coding system should be ordered as:

100 x 2422 025 89574;

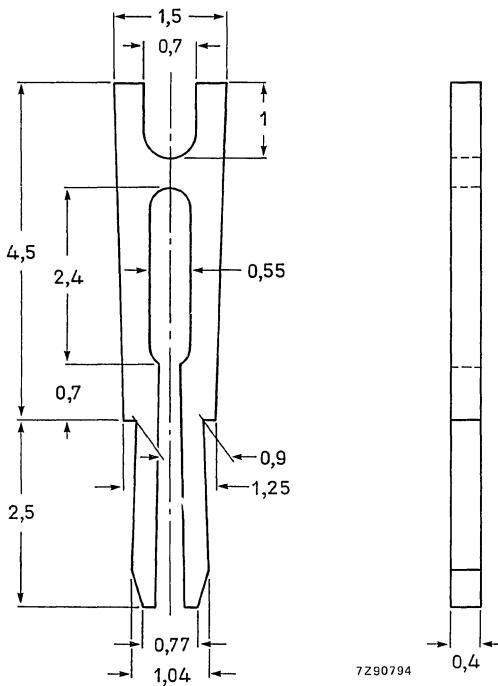
100 x 2422 025 89575;

100 x 4332 026 25850.



## SOLDER TAG

- For basic grid of 2,54 mm (0,1 in)



7290794

Material	phosphor bronze
Finish of termination	tinned
Solderability	235 °C, 2 s, according to IEC 512, test 12a
Preferred hole diameter in the printed-wiring board	0,9 mm
Packing	plastic bags of 10 000 pieces

Note: Order the tags by quoting the 12-digit catalogue number 2422 034 15068. Note that the catalogue number applies to one piece and take into account the smallest packing quantity of 10 000; please order in multiples of this quantity.

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